

## Risk-Based Certification Processing and Maintenance (Guidance)

### RECORD OF REVISIONS

Rev	Date	Description	POC	RM
0	9/17/2014	Initial issue.	Ari Ben Swartz, <i>ES-EPD</i>	Larry Goen, <i>ES-DO</i>

**Contact the Standards POC for upkeep, interpretation, and variance issues.**

<b>Chapter 17</b>	<a href="#"><u>Pressure Safety POC and Committee</u></a>
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A phased approach should be implemented with regard to certification of existing pressure systems.

Priority should be given provide the highest level of risk reduction in pressure systems in accordance with Table ADMIN-1-6 below. The implementation of the pressure safety preventive maintenance process at LANL is risk-based.

With regard to maintenance:

1. The maintenance periods defined in Section ADMIN-4 *Inspection and Testing* articles on Inspection/Testing Interval and Corrosion and Remaining Life are postponed until the risk-based implementation of the pressure safety preventive maintenance process at LANL is complete for a specific system.
  - a. As each pressure system receives initial maintenance and moved into a preventative maintenance program the maintenance intervals of articles on Inspection/Testing Interval and Corrosion and Remaining Life will be applied.
2. Implementation of pressure safety preventive maintenance should emphasize the graded approach of reducing the risk based on the nature of the fluid and the type of hazard; those that pose the greatest risk should be implemented first. Risk-based implementation of the preventive maintenance process at LANL will be to process systems based on the order established in the table. Those systems defined as “High” risk should be implemented first. After the “High” risk, “Medium” and “Low” risk implementation will follow in that order. Where specific conditions of the pressure system warrant the category of risk implementation may be changed with approval from the CPSO and the Safety Management Program Owner.

3. It is the responsibility of the FOD or RAD to ensure the safety of pressure systems, and implementation of the ESM Chapter 17 maintenance requirements.
  - a. Implementation of the pressure safety preventive maintenance cycle should include the following:
    - 1) Verification of adequacy of safety devices and archival of the data in the pressure safety package.
    - 2) Initial servicing of relief devices.
    - 3) Wall thickness measurements for remaining life evaluation (for vessels and piping as appropriate).
    - 4) Tagging of all relief devices and vessels in accordance with ESM Chapter 1 Section 200.
    - 5) Release of a CMMS preventative maintenance work order (with cost codes) for non-programmatic systems.
    - 6) Implementation of a centralized data repository for the maintenance process for relief devices and vessels in programmatic systems.

**Table ADMIN-1-6: Pressure Safety Maintenance Implementation Plan**

<b>Type of Pressure System</b>	<b>Risk-Based Pressure System Ranking</b>
SC/SS (ML1/ML2)	High
High Pressure – Pneumatic	
Toxics (Category M)	
Steam	
High Pressure – Liquid High Volumetric Rate	

Type of Pressure System	Risk-Based Pressure System Ranking
Corrosive <sup>1</sup>	Medium
Brittle Failure Mode (not leak before burst)	
Oxygen <sup>2</sup>	
Flammables	
Cryogenic Liquids	
Steam Condensate	
Compressed Air with Receiver	
Compressed Inert Gases – DOT Cylinders	

Type of Pressure System	Risk-Based Pressure System Ranking
Compressed Air Without Receiver	Low
Compressed Inert Gases – Building Systems	
High Pressure –Low Liquid Volume	
Hydronic piping	
Water Systems	

<sup>1</sup> Corrosive Service – A fluid service in which the internal fluid, or external environment, is expected to produce a progressive deterioration in the pressure boundary material.

<sup>2</sup> Evaluate oxygen systems as required in ASTM G128 and other referenced ASTM standards to determine the likelihood of fire.